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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,579	03/01/2004	Peter W. Lee	AP99-005BB	9866
75	90 01/23/2006		EXAMINER	
George O. Saile			MAI, ANH D	
28 Davis Avenu Poughkeepsie,	· <del>-</del>	12603		PAPER NUMBER
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			DATE MAILED: 01/23/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

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		Application No.	Applicant(s)	V
Office Action Summary		10/790,579	LEE ET AL.	
		Examiner	Art Unit	
		Anh D. Mai	2814	
Period fo	The MAILING DATE of this communication app or Reply	pears on the cover sheet with the o	correspondence address	
WHIC - Exte after - If NC - Failu Any	ORTENED STATUTORY PERIOD FOR REPLY CHEVER IS LONGER, FROM THE MAILING DANSIONS of time may be available under the provisions of 37 CFR 1.13 SIX (6) MONTHS from the mailing date of this communication. Operiod for reply is specified above, the maximum statutory period vure to reply within the set or extended period for reply will, by statute, reply received by the Office later than three months after the mailing ed patent term adjustment. See 37 CFR 1.704(b).	ATE OF THIS COMMUNICATION 36(a). In no event, however, may a reply be tircuit apply and will expire SIX (6) MONTHS from a cause the application to become ABANDONE	N. mely filed n the mailing date of this communication ED (35 U.S.C.§ 133).	
Status				
1)⊠ 2a)□ 3)□	Responsive to communication(s) filed on 30 M.  This action is FINAL. 2b) This  Since this application is in condition for allowar  closed in accordance with the practice under E	action is non-final. nce except for formal matters, pr		;
Disposit	ion of Claims		•	
5) <u></u> 6)⊠	Claim(s) <u>13-15</u> is/are pending in the application 4a) Of the above claim(s) is/are withdray Claim(s) is/are allowed. Claim(s) <u>13-15</u> is/are rejected. Claim(s) is/are objected to. Claim(s) are subject to restriction and/o	wn from consideration.		
Applicat	ion Papers			
10)⊠	The specification is objected to by the Examine The drawing(s) filed on <u>01 March 2004</u> is/are: Applicant may not request that any objection to the Replacement drawing sheet(s) including the correct The oath or declaration is objected to by the Ex	a) accepted or b) dobjected to drawing(s) be held in abeyance. Se tion is required if the drawing(s) is ob	e 37 CFR 1.85(a). ojected to. See 37 CFR 1.121(d	d).
Priority (	under 35 U.S.C. § 119			
a)	Acknowledgment is made of a claim for foreign  All b) Some * c) None of:  1. Certified copies of the priority document:  2. Certified copies of the priority document:  3. Copies of the certified copies of the priority document:  application from the International Bureau  See the attached detailed Office action for a list	s have been received. s have been received in Applicat rity documents have been receiv u (PCT Rule 17.2(a)).	ion No ed in this National Stage	
2) Notice 3) Information	et(s)  ce of References Cited (PTO-892)  ce of Draftsperson's Patent Drawing Review (PTO-948)  mation Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  er No(s)/Mail Date	4) Interview Summary Paper No(s)/Mail D 5) Notice of Informal I 6) Other:		

#### **DETAILED ACTION**

#### Status of the Claims

1. Amendment filed November 30, 2005 has been entered. Claims 13-15 have been amended. Claims 13-15 are pending.

### Specification

2. The disclosure is objected to because of the following informalities: the description of Fig. 3a and 3b appear to be incorrect.

Appropriate correction is required.

#### **Drawings**

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "bit line connects to select and control portion of a channel, and bit line connects to a stacked gate portion and source line connects to select and control portion of a channel, and source line connects to a stacked gate portion" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

#### Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claims 13-15 fail to correspond in scope with that which applicant(s) regard as the invention can be found in the drawing. In Fig. 3a, as indicated by the Applicant as the claimed invention, applicant has stated "upon which the original claim 13-15 are directed, and this statement indicates that the invention is different from what is defined in the claim(s) because:

Step c) recites: "whereby a bit line connects to select and control portion of a channel of a memory device of said cells in the first column and the bit line connect to a stacked gate portion of said channel of the third column of cells".

However, according to Fig. 3a, the line that control the channel is world line WL, and the line that connects cells of the first and third column (horizontal) is again WI.

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As shown in the drawings, bit line BL are connected to the source/drain of the memory cells, vertically, see step b).

Step e) recites: "whereby <u>said source line</u> connects to a <u>stacked gate portion</u> of said channel of the first column of cells and <u>the source line</u> connects to a <u>select and control portion</u> of said channel of the second column of cells".

Again, source lines SL only connect to source/drain of cells and the line that connect to the stacked gates or to a select and control portion of the channel are WL.

The specification, page 11-12 describing the invention of Fig. 3a, appears to be contradicting the elements in the drawing.

5. Claims 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claim recite both an apparatus and method of use (programming operation and erasing operation). It has been held that a claim reciting both an apparatus and a method of using that apparatus renders a claim indefinite under section 112, paragraph 2. *Ex parte Lyell*, 17 USPQ 2d 1548 (BPAI 1990). (See MPEP 2173.05(p)(ii)).

Therefore, claims 13-15 are indefinite.

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### Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- 6. Claims 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuroda et al. (U.S. Patent No. 5,548,146).

With respect to claim 13, as best understood by the examiner, Kuroda teaches a non volatile memory as claimed including:

- a) flash memory cells (Q) organized in rows (Q00, Q01, Q02) and columns (Q00, Q10, Q20),
- b) cells (Q) in a row are interconnected by a word line (W) connecting to control gates of the flash memory cells (Q) in the row,
- c) cell layout in a first column of cells having a same cell layout in adjacent second and a third columns of cells (Q), whereby a world line (W0) connects to a select and control portion of a channel of a memory device of the cells (Q00) in the first column and the world line (W0) connects to a stacked gate portion of the channel of the third column of cells (Q02),
- d) a bit line (D2) extends full length of the columns (vertically), laying between the cells of the first (Q00) and third (Q02) columns,
- e) a source line (D1) extends full length of columns (vertically), laying between the cells of the first (Q00) and second (Q01) columns, whereby the world line connects to a stacked gate

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portion of the channel of the first column of cells (Q00) and the world line connects to a select and control portion the channel of the second column of cells (Q01),

the cells arrays of Kuroda are capable of programming and erasing operation as claimed including:

f) a program operation of the flash memory cells organized by a vertical page comprising memory cells in the first column, whereby a source line voltage and a bit line voltage of the vertical page are set for the program operation and a word line program voltage is stepped from cell to cell in the first column,

g) an erase operation of the flash memory cells organized by horizontal block comprising a first row of cells adjacent to a second row of cells and whereby all bit lines, source lines and word lines of the horizontal block are coupled to a same low voltage and then word lines coupled to cells in the horizontal block are biased to an erase voltage,

h) the cell (Q) layout in the columns allowing vertical page programming and horizontal page/block erase. (See Fig. 2).

With respect to claim 14, the bit lines (D) of Kuroda provide a path to read data stored in the cells (Q) when performing a read operation.

With respect to claim 15, the source line (D1) connect to sources of cells (Q00, Q10, Q20) of the first column, connect to drains of cells (Q01, Q11, Q21) of the second column and connect to source voltages.

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## Response to Arguments

7. Applicant's arguments with respect to amended claims have been considered but are moot in view of the new ground(s) of rejection.

#### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh D. Mai whose telephone number is (571) 272-1710. The examiner can normally be reached on 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PRIMARY EXAMINER